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Beyond Crime Statistics: The Construction and Application of a Criminogenity Monitor in Amsterdam

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Abstract Criminologists have devoted a great deal of attention to risk factors – also called criminogenic factors – leading to criminal offending. This paper presents a criminogenity monitor which includes 19 risk factors that underlie crime. These factors do not themselves cause criminal behaviour; rather, they must be seen as signals that crimes may be committed. After discussing how the criminogenity monitor was constructed, we apply the risk factors we examined to the situation in Amsterdam, capital city of the Netherlands. The monitor is intended to function particularly as an instrument to rationalise policy-makers' work in targeting and preventing symptoms of crime at three geographical levels: the entire city, its boroughs and its neighbourhoods.

Keywords Crime prevention · Criminogenity · Risk factors

Introduction

The question of why people commit crimes lies at the heart of criminology. Indeed, this question mainly constitutes and legitimises criminology's existence as an academic discipline. However, curiosity about what leads people to perform criminal acts goes further than academic forums alone (Loader and Sparks 2011). Such professionals as civil servants and senior police officers also address the question of why crime occurs, not least to implement preventative measures

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(Hawkins 1995; Sherman et al. 1997). Policies are often informed by a combination of visible (i.e. measurable) crime trends based on police statistics and theoretical assumptions about what moves people to engage in criminal behaviour. One of the pivotal problems professionals encounter is the virtual non-existence of an overarching model to predict the probability of crime and disorder problems. This leads to frustration concerning the effectiveness of public safety policies. Professionals feel that problems could have been prevented with earlier (pro-active) interventions based on proper information.

Inspired by the fact that policy formulation in the area of public safety needs better information about which factors underlie criminal behaviour, this paper presents a so-called ‘criminogenity monitor’, which attempts to gaze beyond common crime statistics. Our aim is not to construct a grand ‘theory of crime causation’, integrating different levels of explanation (see Wikström (2003) for an interesting chapter in this regard). Rather, we attempt to create a pragmatic policy instrument to guide and rationalise policy-makers’ decisions about the implementation of crime prevention measures in public, urban areas. When constructing this instrument, we gathered risk factors from an extensive literature review of what is known about the occurrence of (future) crimes. Considered together, these factors comprise a ‘criminogenity monitor’ that images locations where crime risks are highest. Of course, we are not so naïve as to expect that such a monitor would provide forecast information on which criminals could be caught before they commit crimes – a quite scary science fiction fantasy that Steven Spielberg sketches in his famous blockbuster *Minority Report*. Our only – modest – claim is that the criminogenity monitor assists in assigning priorities in the formulation of policies to reduce crime risks in cities.

After completing the criminogenity monitor by identifying and selecting plausible risk factors, ranging from parental divorces and school drop-out to the availability of soft drugs and gun possession, we applied and tested the policy instrument in Amsterdam, capital city of the Netherlands. In so doing, the logic we followed shifted precedence from post-crime criminal justice policies, which respond to wrongs done, to lay emphasis on a pre-crime orientation of anticipation, prevention and intervention (Zedner 2007). The monitor does not focus on an individual accumulation of risk factors, but takes territorial aggregation as its starting point. Three levels of aggregation are taken into account: the entire city of Amsterdam, its 15 boroughs¹ and the 78 residential neighbourhoods which make up the city. These boroughs and neighbourhoods comprise the administrative sectors of Amsterdam, each of which form the core of policy-makers’ strategic orientation on crime prevention strategies. In the following pages we outline how the criminogenity monitor was constructed, how it works in practice, and the output it produces.

Theoretical Starting Point

The theoretical foundation of our criminogenity monitor rests on the assumption that risk factors – criminogenic factors – underlie crime committed by individual criminals and their deviant acts. This assumption is derived from the field of ‘developmental criminology’ (Farrington 2002; Tremblay and Craig 1995). Our basic idea is that once criminogenic factors are identified, it becomes feasible to counter the risk of crime. It is further assumed that the probability of crime increases as the number and intensity of risk factors grow. In Western countries, risk factor models are currently applied in such areas as preventive youth policies, an example being the *Communities that Care programme*, which originated in the United States (Steketee et al. 2007), but they have also gained ground in police and criminal justice circles.

¹ This number was reduced to eight in 2010.

Notwithstanding its popularity today, the term ‘risk factor’ is a slippery one. Some scholars use it as an extreme condition, while others refer to dichotomous (‘rich/poor’) or continuous (‘scale of social control’) explanatory variables. Moreover, some risk factors may be direct causes of crime, while others are ‘merely markers or correlated with causes’ (Farrington 2000: 7). Despite such disadvantages, we view the concept of risk factors as an important breakthrough in criminology as it transcends over debates about deterministic explanations. Many factors influence criminal behaviour, but it is a combination of factors that ultimately culminate in risky situations. This focus on the accumulation of risk factors renders obsolete entrenched academic and professional discussions about the one – exclusive – factor. We define risk factors by their ability to signal the possible occurrence of crime and criminals in certain urban areas, such as neighbourhoods and boroughs.

Departing from this ‘risk factor prevention paradigm’ (Farrington 2000, 2002), we included as many risk factors as we were able when constructing the criminogenity monitor. These factors are all derived from a wide variety of criminological theories, making our approach eclectic. However, the need to build an inclusive policy instrument compensates for our ignoring academic subtleties. The first step was to extract risk factors from meta-studies conducted in criminology (e.g. Bol et al. 1998; Buettner and Spengler 2003; Gendreau et al. 1996; Hawkins 1995; Hawkins et al. 2000; Huang and Wellford 1989; Jones and Connelly 2002; Nivette 2011; Pratt and Cullen 2005; Van der Laan and Blom 2006). On top of that, we made use of risk factors applied in the *Communities that Care* programme mentioned above and risk factors available from an evaluation of recidivism probability.² This resulted in a long-list of 127 risk factors.³

Constructing the Criminogenity Monitor

Obviously, 127 risk factors is too big a number to work with, since not all factors are important and practical enough to match the policy-oriented purposes of our criminogenity monitor. Consequently, we decided to select the most appropriate risk factors by a thorough selection process (Fig. 1). First, we reduced the large number of risk factors on grounds of relevance. Less relevant, for example, were biological and genetic features since such factors do not play a major role at an aggravated – neighbourhood and borough – level. Second, we examined ways to measure the risk factors accurately by investigating the viability of operationalising such factors through indicators, and assessing the availability of meaningful data in the collections of the municipal Department of Research and Statistics⁴ and the Bureau of Management Information and Research of the Amsterdam-Amstelland Police Force.⁵ This resulted in a shortlist of 30 risk factors (Table 1).

Third, we used statistical calculations to further condense the shortlist of 30 risk factors into the final monitor. The primary question was whether factors actually correlated with dependent variables relating to (un)safety, crime and criminal target groups. We completed the content of these variables with information from the Amsterdam municipality’s Safety Index scores (*Amsterdamse Veiligheidsindex*) and the Amsterdam-Amstelland Police Force (police reports and crime statistics). The Safety Index is published annually. It contains subjective scores on perceptions and experiences of crime, but more to our purpose, it

² This evaluation was carried out by a consultancy firm: www.vanmontfoort.nl/.

³ This long-list is available from the lead author to interested parties.

⁴ See on Internet: www.os.amsterdam.nl/.

⁵ Seen on Internet: <http://www.politie-amsterdam-amstelland.nl/>.

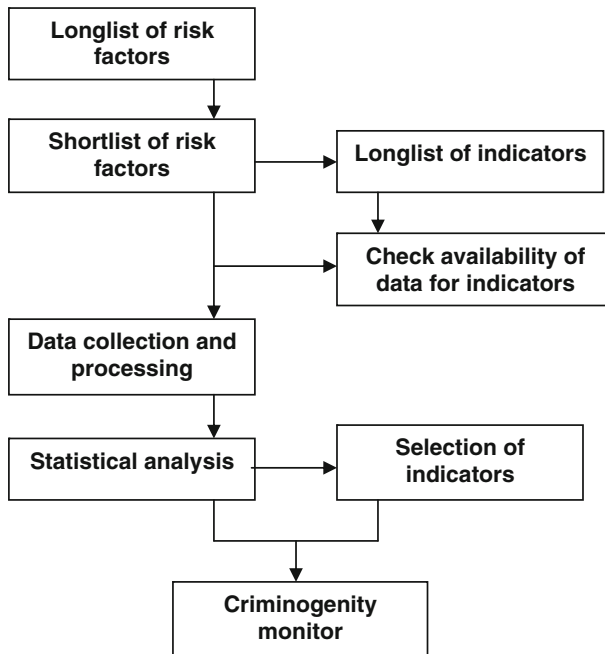


Fig. 1 Risk factor selection procedure

contains objective police records. We only charted the latter, objective data to measure ‘real’ crime in the city’s boroughs and neighbourhoods. Our dependent variables were thereby operationalised by the following indicators:

- burglary and theft, vandalism and public disorder, drugs, and violence (safety index variable);

Table 1 Shortlist of risk factors

1. Gender (male)	16. Enduring poverty
2. Adolescents and young adults	17. Crowded housing
3. Adolescent male	18. Inadequate social cohesion
4. Non-western foreigners	19. Physical degradation of public space
5. Possession of firearms	20. Availability of soft drugs
6. Possession of knives and other close-combat weapons	21. Underage offenders
7. Single parenthood	22. Poor competencies
8. Divorces	23. Alcohol addiction
9. Teenage mothers	24. Soft drug addiction
10. Low income parents	25. Hard drug addiction
11. Long-term low income parents	26. Psychiatric problems
12. Child molesting	27. Poorly educated parents
13. Unemployment	28. Lack of commitment to school
14. Long-term unemployment	29. School drop-outs
15. Poverty	30. Polarisation and discrimination

- domestic violence, other violence and fraud (crime variable);
- persistent adult offenders, problematic youth groups, and hard-core youth criminals (target groups variable).

The statistical analysis was initially geared towards comparison of data at the level of residential neighbourhoods. When no data were available on this level, we extended risk factors to the borough level. Four of the 78 neighbourhoods were excluded from our analysis, either because we found considerable outliers or vital data were missing (one neighbourhood was newly built at the time of our research). The neighbourhoods and borough are not all the same size. For example, Amsterdam-North houses about 88,000 residents, while Amsterdam-West (130,000 residents) and New-West (133,000 residents) are larger. To assure consistency and comparability of the data collected, we operationalised dependent and independent variables through indicator scores relative to the geographically concentrated population sizes within Amsterdam. Subsequently, we calculated an average score for these indicators for the 2003–2006 period. This allowed us to paint a clear picture of selected risk factors throughout Amsterdam. Data collection over a longer period of time permitted us to derive better – more reliable – results than calculations based only on the most recent figures.

In the final stage of our selection process we measured how well the shortlist of thirty key risk factors correlated to the dependent crime, unsafety and target group variables. We decided to exclude each factor that displayed coefficients with a p-value over 0.05, because, in these cases, relationships between dependent and independent variables could not be determined with a certainty of at least 95%. Additionally, we excluded risk factors such as ‘enduring poverty’, ‘poor parents’ and ‘enduringly poor parents’ which were highly correlated with the general poverty factor. Likewise, the factor ‘enduring unemployment’ (correlating closely with the general unemployment factor) was excluded from our statistical calculations. The 30 risk factors were eventually reduced to 19 factors (Table 2) which together form the criminogenity monitor.

Reflections

The original long-list of 127 risk factors has been radically cut to 19 factors during the construction process. To a large extent this is directly attributable to a lack of relevant risk factors and meaningful data in creating a criminogenity monitor on an aggregated geographical scale. Furthermore, the exclusion of risk factors resulted from statistically motivated selections. In its aggregation of general data from municipal and police sources, the monitor’s output is somewhat superficial. It is neither capable of recognising the unique features of locations, places and people (Cohen and Felson 1979) nor distinguishing between day and night (Felson and Poulsen 2003). Moreover, the monitor neglects the ‘criminal mobility’ factor (Buettner and Spengler 2003) – offenders do not necessarily commit crimes in their own habitat – and overlooks the ‘dark number’ side of offences (Wittebrood and Junger 2002): there is always a discrepancy between recorded and non-recorded crime.

When we did our statistical calculations we found that most independent variables were closely allied. Having this high degree of (multi)collinearity is a significant issue. As Pennings et al. warn, ‘collinear variables overlap each other. Therefore their joint influence is less than the sum of their separate influences, and disentangling their separate influence becomes nasty’ (1999: 170). There are sophisticated regression analysis techniques which could be invoked to overcome the collinearity problem by removing or combining variables. However, for pragmatic reasons, we decided not to undertake any supplementary statistical

Table 2 Selected risk factors and indicators

1. Male (per 1,000 inhabitants)
2. Poor competencies (adolescents aged 17 to 22 who left school without a diploma per 1,000 inhabitants in the same age category)
3. Non-western foreigners (per 1,000 inhabitants)
4. Possession of fire-arms (registered suspects in police databases per 1,000 inhabitants)
5. Possession of knives and other close-combat weapons (registered suspects in police databases per 1,000 inhabitants)
6. Drug addicts (number of opiate addicts per 1,000 inhabitants as estimated by the Municipal Health Service)
7. Adolescents and young adults (adolescents aged 12 to 24 per 1,000 inhabitants)
8. Underage offenders (registered offenders aged 12 to 18 in police databases per postal code)
9. Lack of commitment to school (registered truants aged 5 to 17 per 1,000 inhabitants in the same age category)
10. School drop-outs (children aged 5 to 18 who are not enrolled in any school per 1,000 inhabitants in the same age category)
11. Single parenthood (children in single parent families per 1,000 inhabitants)
12. Divorces (children involved a parental divorce per 1,000 inhabitants)
13. Poorly educated parents (number of poorly educated families per 1,000 inhabitants)
14. Unemployment (job seekers registered at the Centre for Work and Income per 1,000 inhabitants)
15. Poverty (persons living in minimum-income households per 1,000 inhabitants)
16. Crowded housing (housing that provides less than one room per occupant per 1,000 inhabitants)
17. Physical degradation of public space (municipal survey data of respondents' complaints about litter in their neighbourhood)
18. Availability of soft drugs (presence or absence of a coffee shop in a neighbourhood)
19. Inadequate social cohesion (residential turnover as a percentage of registered inhabitants in a neighbourhood)

work since our goal was to display recognisable – separate – risk factors. The main purpose of our criminogenity monitor was, after all, to ensure that the policy instrument was clear, simple and beneficial to policy-makers. Utilising this instrument, policy-makers are able to target factors related to the risk of crime, not its causes.

The Criminogenity Monitor in Action

Table 3 displays the independent risk factors on the vertical axis and the dependent (un)safety, crime and criminal target group variables on the horizontal one. The numbers – correlation coefficients – designate the strength of a relation between the dependent and independent variables. The absence of a number means that no significant relation was found.⁶ Grey fields accentuate the five strongest relations found for each dependent variable. The following paragraphs briefly illuminate promising theoretical debates on the risk factors' criminogenic effects as a way to inform policy recommendations. We divided the 19 selected factors into five categories – personal factors, youth factors, family factors, standard of living, and local environment – to preserve the comprehensibility of the complete monitor. These categories are discussed below.

⁶ As noted earlier, correlations with a *p*-value of 0.05 or higher are deemed insignificant.

Table 3 The Amsterdam criminogenicity monitor

	Safety index			Other crime			Target groups				
	Total	Burglary & theft	Vandalism & public disorder	Drugs	Violence	Domestic violence	Other violence	Fraud	Persistent adult offenders	Problematic youth groups ^a	Hard core youth criminals
Male	0.42	0.42	0.26	0.42	0.25		0.33	0.29	0.59		
Poor competencies	0.31		0.29		0.49	0.69				0.66	0.67
Non-western foreigners	0.60	0.48		0.39	0.76	0.79	0.26	0.23		0.30	0.69
Possession of firearms	0.68	0.40		0.64	0.77	0.64	0.48	0.50	0.28	0.28	0.53
Possession of knives and other close-combat weapons	0.49	0.46		0.37	0.56	0.49	0.35	0.28	0.33	0.30	0.44
Drug addicts ^a				0.41			0.40	0.47	0.83		
Adolescents and young adults	0.46	0.42			0.63	0.70				0.43	0.69
Underage offenders ^a	0.32	0.32			0.49	0.47				0.66	0.92
Lack of commitment to school	0.31	0.25	0.24		0.45	0.68					0.49
School drop-outs				0.35				0.37			
Single parenthood	0.48	0.25		0.43	0.70	0.69	0.31	0.36	0.25	0.48	0.57
Divorces	0.38	0.23		0.25	0.63		0.23	0.25		0.61	0.68
Poorly educated parents ^a	0.25	0.28			0.43	0.49				0.61	0.88
Unemployment	0.59	0.37	0.43	0.46	0.64	0.76			0.27		0.31
Poverty	0.57	0.42	0.31	0.36	0.69	0.84				0.25	0.50
Crowded housing	0.50	0.44	0.31	0.37	0.45	0.48			0.37		0.29
Physical degradation of public space	0.54	0.36	0.41	0.34	0.56	0.55					0.23
Availability of soft drugs			0.32								
Inadequate social cohesion	0.47	0.32		0.57	0.40	0.26	0.54	0.58	0.38		

^a The information used was available only at the city and borough levels.

Personal Factors

Even though, at first glance, the risk factor *male* exhibits limited variation and is of relatively minor interest in policy terms (gender can hardly be altered), it is worth noting the factor's strong correlation with the dependent variables. That crime is mostly committed by men is, in fact, one of the least disputed notions among both criminologists and policy-makers (the idea that women may have criminal careers too is actually a seriously understudied topic in the literature; Steffensmeier and Allan 1996). However, why men are overrepresented in crime statistics is a complicated puzzle. Gender-specific social norms and responses to strain accompanied by a different moral consciousness as well as biologically driven physical strength and natural aggressiveness are asserted to explain male's distinctive overrepresentation in the criminal justice system (Broidy and Agnew 1997; South and Messner 2000). Insofar as policy recommendations are available, Agnew (1995) suggests improving social support for (adolescent) males struggling with such diverse stimuli as broken (romantic) friendships, a lack of respect and money, and adverse experiences with parents, peers and teachers. They should be taught how to handle such difficulties of life.

In addition, psychologists and criminologists consider *poor competencies* – involving low intelligence, poor education, and a lack of basic skills – to be a criminogenic factor since they are associated with long-lasting unemployment and poverty. Scholars assume that individuals of low intelligence can barely envision the consequences of their disruptive deeds (for themselves and for their victims alike), they feel frustration, hopelessness and tension, and they suffer from a distorted self-image, all of which may lead to criminal excesses (Farrington 2002; Tremblay and Craig 1995). Implications for policy-makers are that early investments in human capital (e.g. schooling) should in the long run 'reduce the amount of resources needed for corrective services from our education, health and justice systems' (Tremblay and Craig 1995: 225).

The positive correlation between the risk factor *non-western foreigners* (i.e. according to the municipality's own definition, persons with at least one parent born outside Europe, North-America, Australia, Japan and Indonesia/former Dutch East Indies) and crime rates is today widely recognised in the Dutch context. However, whether or not this is an autonomous factor remains the subject of a politically sensitive criminological discourse. Most scholars propose that the relatively large number of non-western offenders relates to their socio-economic deprivation, which, in turn is believed to be an effect of their personal descent (Junger-Tas 1997). Language difficulties cause problems in the labour market, while poverty is a prime push factor underlying (their parents') migration to the Netherlands. Discrimination by employers confounds other criminogenic factors such as unemployment and enduring poverty contributing to crime.

On an alternative reading, non-western foreigners' involvement in shaping deviance and (organised) crime can be determined culturally by a way of life which, for instance, encourages domestic violence, honour-related violence and mafia-style practices (Bovenkerk et al. 2003). The incompatibility between their parents' traditional norms and values and the dominant Dutch culture might explain difficulties that affect children of first-generation immigrants. Moreover, ethnic heterogeneity perhaps affects the ability to exert informal social controls and forestall criminal activities in both positive and negative ways (South and Messner 2000). The options available for policy initiatives thus point in different directions.

Though the private possession of firearms is prohibited in the Netherlands, a common-sense risk factor is the *possession of firearms* around the city of Amsterdam; 'an assault with a gun is more likely to result in death than other assaults' (Tonry and Bijleveld 2007: 21). The risk factor *possession of knives and other close-combat weapons* (daggers, sabres, knuckle dusters, and so on) is a further prescription for violent offences. In response, the Dutch police are mandated to conduct random, preventative (body) searches of people in designated urban security zones.

Risk assessments are helpful in directing these police actions. However, the exercise of special stop-and-search powers at the municipal level remains very controversial as ethnic profiling is a ever-present danger lurking beneath expanded legal authority for public law enforcement officers (Van der Leun and Van der Woude 2011).

Finally, the existence of *drug addicts* can be labelled a criminogenic factor as addicts have to obtain substantial funds to sustain their unfortunate habit, while they usually lack regular work and income. For that reason, addicts all too often become specialists in petty larceny such as shoplifting and burglary, but they also commit much more serious offences, like armed robbery and mugging. Moreover, the use of narcotics diminishes peoples' common inhibitions, which enhances the potential for a variety of expressive (or emotionally motivated) crimes (Grapendaal et al. 1992; Harrison 1992). Addicts are dragged into a criminal scene that sustains their drug dependency and is overtly violent. Despite Amsterdam's liberal image, the Dutch authorities are 'not slack in fighting drugs-related crimes' (Buruma 2007: 92). The city actively combats organised drug production and follows a dual approach to drug addicts on the streets, combining health and police measures. An awareness of how mostly homeless addicts spread around the city assists policy-makers in deciding which measures (alone or in combination) to adopt in a specific neighbourhood.

Youth Factors

Rebellious young people have, by and large, been seen as posing a risk to society, and being 'at risk' themselves (Crawford 2009). *Adolescents and young adults* especially form a risk factor as they are responsible for a disproportionately large number of offences. Youth involvement in crime is considered to peak between the ages of 17 and 20. An explanation for this is the frustration of biologically mature youths with their immature social status, which causes them to revolt (derailing them into disorder and crime) with the intention of gaining autonomy and the attention of adults (Moffit 1993; South and Messner 2000).

Children, especially teens, belong to a special subcategory in this respect. They are seeking their identity and social boundaries, making them vulnerable as they mimic persistent anti-social and criminal behaviour (Moffit 1993). Key contributors to the risk factor *underage offenders* – children aged between 12 and 18 years who have been booked in once or repeatedly by the police – are social exclusion, rejection and stigmatisation, which could push already criminally inclined youngsters in even worse directions. As such, participation in criminal groups at a young age is a good predictor of developing difficult behaviour. It possibly reflects enduring criminogenic personality traits.

(Self-)exclusion may express itself in a *lack of commitment to school*. This is deemed a risk factor because empirical studies demonstrate that an aversion to school increases the chances of delinquency (Weerman and Van der Laan 2006). More specifically, *school drop-outs* – i.e. minors who are legally required to go to classes but are not enrolled in any school – represent a worrying risk factor. Leaving school early (or not attending school at all) means a lack of qualifications and is likely to have cumulative disruptive effects on peoples' life courses; people are forced into less desirable jobs, limiting their future options and increasing the danger of long-term unemployment (Henry et al. 1999). Interventions should thus be aimed at children, and their families, to offer support designed to prevent pupils from school failure.

Family Factors

Many authors regard growing up in single parent families (risk factor *single parenthood*) a criminogenic factor for young people, as the conventional parental control and normative

influence are diminished or absent in such households. According to North-American research, 'the longer the father remains in the household, the "better off" the youth is' (Antecol and Bedard 2007: 69). At the same time, levels of delinquency are lower in single-mother than single-father families. This reflects the fact that a mother, in general, is better equipped to exert supervision and stays closer to her offspring (Demuth and Brown 2004). The absence of one parent has an adverse impact on children's capacity to monitor their own conduct and govern their own destiny. In addition, if there is little or no contact with the absent parent, the child's emotional affection for his or her mother or father presumably weakens, thereby reducing psychological inhibitions against the transgression of norms and values.

At worst, parental *divorces* have a criminogenic effect on children and teenagers. Enduring tensions and conflicts between spouses clearly obstruct the effective upbringing of their progeny. Moreover, divorces commonly result in single parent families, a risk factor discussed above, as broken homes and emotional traumas may engender grave misbehaviour and breaches of order by the children (Agnew 2001; Sampson and Laub 1990). Policy-makers and other public professionals have no means by which they can interfere in such personal matters as love, marriage and divorce (and encouragement to stay together is not necessarily the best option). Nevertheless, teachers, doctors and social workers who are engaged in neighbourhoods where single parenthood and divorce rates are high may develop extra sensitivity to children's needs.

However, divorces are not the sole reason for family stress. Having *poorly educated parents* is another criminogenic factor, because, on average, such parents run a higher risk of losing their job and also tend to be more neglectful of their responsibilities towards children. As Sampson and Laub (1990) argue, childhood delinquency is consistently linked to worrying adult behaviour, including educational failure, job instability and material discord. Subsequently, parents with a low social-economic status are generally less skillful in stimulating their offspring's intellectual progress, since they lack the capacities to do so, or do not place a high value on education. This perhaps sustains a 'culture of poverty' (Lewis 1963) in which children underperform in school and (violent) delinquency is endemic (Heimer 1997). Municipal crime prevention programmes should not underestimate the seriousness of socio-economic deprivation in neighbourhoods and communities.

Standard of Living

In line with the body of knowledge on crime and socio-economic conditions, *unemployment* is viewed as a prime risk factor for criminal activity (Philips and Land 2012), above all among the young (Fougère et al. 2009). Apparent reasons for this are that unemployment creates (relative) inequalities, affords time to commit offences as a result of inadequate financial resources and frustration, and evaporates the (informal) human contacts and controls present in work environments. Continuing economic inactivity thus set off a downward spiral of disadvantage and social isolation in which *poverty* (our next criminogenic factor) is the central driving force. 'Unemployment heightens the risk of people falling into poverty', Gallie et al. (2003: 28) write, 'and poverty in turn makes it more difficult for people to return to work'. The crime-poverty nexus is not undisputed, however. Poverty must be interpreted more broadly than just an economic position, as it is deeply implicated in the societal dynamics of race, gender, class, and other identities (Spencer-Wood and Matthews 2011).

The final risk factor associated with unfortunate standards of living is *crowded housing*. According to the pioneering literature on the ecology of crime (Choldin 1978; Stark 1987), this factor is a principal predicament in the poorest, often densely populated, neighbourhoods. Scholars broadly assume that crowded housing increases crime by aggravating conflicts at home, driving children and teenagers onto the streets. Once outside, parental

supervision is diminished or absent, which increases the temptation to deviate. Youngsters become exposed to undesirable peer influences, spend a great deal of time with delinquent friends, and become increasingly involved in such offences as vandalism and shoplifting (Haynie and Osgood 2005; Moffit 1993). Policies aimed at turning around such slippery slopes of deprivation and crime need to concentrate on the provision of job opportunities and the continued improvement of quality of life. There are good grounds for assuming that welfare programmes are to be preferred over criminal justice interference.

Local Environment

As a final category, local urban environments contain several criminogenic factors (Bottoms and Wiles 2002). Most visibly, the *physical degradation of public space* contributes to security hazards. Consistent with the famous, but also criticised ‘broken windows’ hypothesis (Wilson and Kelling 1982), on the one hand, members of the general public start to avoid spaces because of litter, graffiti and vandalised objects. In the end, shops close and residents move away to preferable neighbourhoods. Criminals, on the other hand, are attracted by the apparent lowering of natural social controls as people withdraw from local environments and leave the streets and blocks unattended. A poor state of the psychical environment, in other words, weakens social norms of conformity and creates anonymous places where crime is much more likely to flourish. Not unexpectedly in Amsterdam, the *availability of soft drugs* is a risk factor for neighbourhood degeneration on its own.

As to people monitoring each other, *inadequate social cohesion* amplifies crime and disorder. Adopting the construct of ‘collective efficacy’ propounded by Sampson et al., ‘the willingness of local residents to intervene for the common good depends in large part on conditions of mutual trust and solidarity among neighbours’ (1997: 919). However, while social cohesion is doubtless important in shaping human behaviour, interpersonal bonds are usually fairly weak in and around urban areas. Having ‘a more or less liberal dislike of internal prescriptions’, city dwellers in the Netherlands rather prefer ‘communities light’ (Hurenkamp 2009: 156). That said, social disorganisation theories and crime opportunity theories explicitly link the likelihood of increasing crime rates to communities which are internally very much divided by high rates of residential turnover and ethnic heterogeneity. If neighbourhoods are too unstable in their socio-economic composition, housing units in general and newcomers in particular are likely to run major risks of property victimisation (Xie and McDowall 2008). While it is probably true that municipalities have a minor influence on such an abstract thing as ‘collective efficacy’, policy-makers do matter in keeping neighbourhoods safe and clean. In fact, straightforward interventions such as repairing streets lights and sweeping the streets arguably have instant positive effects on how people perceive their environments.

Results

As stated from the outset, the goal of the criminogenity monitor is to indicate symptoms (not causes) of crime in Amsterdam. Quantitative results, together with theoretically posited threats, unequivocally show a vast degree of interdependency between sets of risk factors. Crime in Amsterdam can be explained by a host of factors. Our goal was to reduce complexity and discover what policy-makers should target: separate and recognisable risk factors that correlate with criminal groups and criminal conduct.

Looking at individual criminogenic factors, the dominant position of the possession of firearms stands out. This factor displays the strongest correlation with the total safety index scores and connects with most dependent variables. Yet it should be noted that comparatively

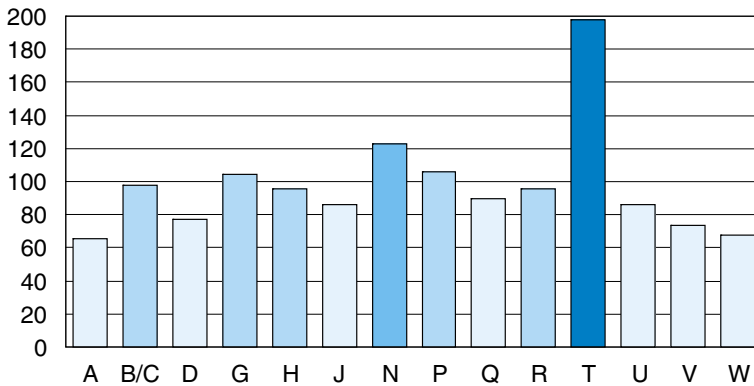


Fig. 2 Single parenthood per borough (index scores)

few people are suspected of carrying guns in Amsterdam, which undermines its usefulness as a good predictor for crime and criminals. Gun violence remains a fairly rare event. Other top-5 risk factors are non-western foreigners, unemployment, poverty and the physical degradation of public space. At the bottom of our list, for example, the availability of soft drugs only ties up with vandalism and public disorder.

Focusing on the types of crimes under scrutiny, violence – chiefly domestic violence – closely correlates with many criminogenic factors. This is also the case for burglary and theft, but only weakly so. The group variable ‘persistent adult offenders’ associates with males and drug addicts, while these two risk factors are not solidly connected to any other dependent variable. The group variables ‘problematic youth groups’ and ‘hard core youth criminals’ are robustly tied to a huge number of risk factors, including single parenthood, divorces, adolescents and young adults, underage offenders, lack of commitment to school, poorly educated parents, poor competencies, inadequate social cohesion, crowded housing

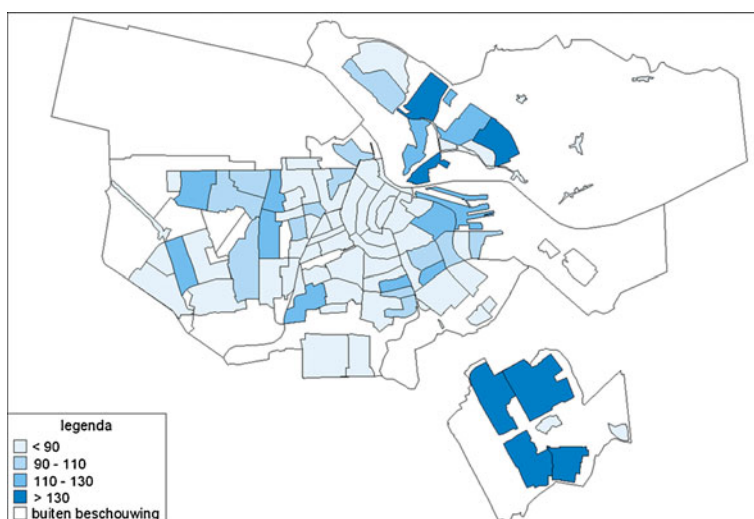


Fig. 3 Mapping single parenthood in Amsterdam

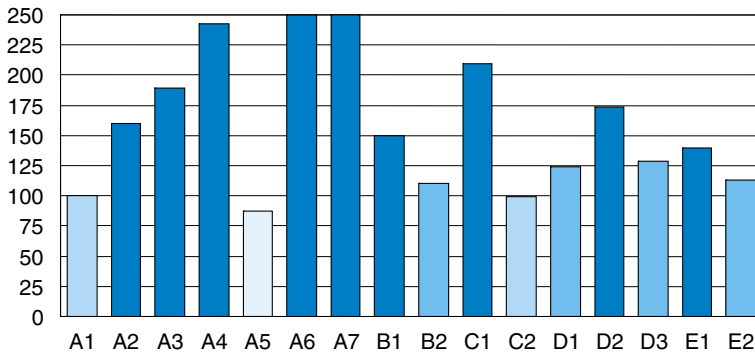


Fig. 4 Risk factors in Overtoomse Veld (index scores)

and the possession of knives and other close-combat weapons. Youngsters and adolescents have henceforth been acknowledged by Amsterdam policy-makers as needing of considerable attention, which they are to receive.

A Criminogenity Index

After presenting numerical scores of the criminogenity factors in Amsterdam, the monitor can also feed our spatial understanding of crime risks. Through the indexation of factors by borough and neighbourhood, we are able to draw visual comparisons between separate parts of the city. First, as Fig. 2 shows, histograms present a survey of the magnitude of one risk factor per borough.⁷ In the example of single parenthood, the area of Amsterdam South–East (*Zuidoost*) calls for special treatment.

Second, corresponding to the tradition of ‘crime mapping’ (Ratcliffe 2010), our aggregated data make it possible to envision the risk factors scattered around Amsterdam. Again employing the example of single parenthood, Fig. 3 shows that Amsterdam South–East (the area in the bottom–right corner) is an undisputed hotspot.

Finally, histograms are able to incorporate an assessment of most risk factors in a single borough. For instance, Fig. 4 dramatically illustrates that in the neighbourhood combination ‘Overtoomse Veld’ (borough of Slotervaart), nearly half of the risk factors score above the city’s average.⁸ This part of Amsterdam suffers from criminogenic overload.

Conclusion and Discussion

The growth of crime over recent decades has developed into what Rittel and Webber (1973) call a ‘wicked problem’, that is: a problem that has no enduring solution since problems

⁷ Clarification of the labels (boroughs): A: Centrum; B/C: Westpoort/Westerpark (combined); D: Oud-West; G: Zeeburg; H: Bos en Lommer; J: De Baarsjes; N: Noord; P: Geuzeveld-Slotmeer; Q: Osdorp; R: Slotervaart; T: Zuidoost; U: Oost/Watergraafsmeer; V: Oud-Zuid; W: Zuideramstel.

⁸ Clarification of the labels (risk factors): A1 Male; A2: Adolescents and young adults; A3: Non-western foreigners; A4: Underage offenders; A5: Poor competencies; A6: Possession of knives and other close-combat weapons; A7: Possession of firearms; B1: Divorces; B2: Single parenthood; C1: Lack of commitment to school; C2: School drop-outs; D1: Unemployment D2: Poverty; D3: Crowded housing; E1: Physical degradation of public space; E2: Availability of soft drugs.

create or reveal other problems and professionals come up with contradictory solutions in a constantly changing policy setting. Our criminogenity monitor is appealing in its ability to rationalise the resulting byzantine decision-making processes and appropriately prioritise government actions. The proof of the pudding, however, is in the eating: how have policy-makers received the monitor?

After publishing the monitor in 2008, senior police officers reacted most enthusiastically. They saw it as an instrument that helped to steer the activities of organisations other than law enforcement agencies, most notably the police themselves. Since it is capable of pinpointing geographically circumscribed risk factors in the social and economic spheres (e.g. unemployment, crowded housing, poverty, poor competencies), many third parties, including municipal departments, housing associations, youth and community services and schools, come into sight. These parties can be 'responsibilised' (Garland 1996) to forestall problems by implementing protective measures.

The Amsterdam municipality was somewhat more hesitant about the monitor, due to its complicated relationships with, and resistance from, the boroughs and neighbourhoods. Highlighting risk factors is one thing, acting upon them is another. Considerable obstacles to a genuinely integrated safety policy involving diverse public and private organisations include coordination problems, bureaucratic inertia and incomprehension among partners. Local governments face huge difficulties reconciling internal struggles between participants at borough and neighbourhood levels (Terpstra 2008). An updated version of our criminogenity monitor therefore needs to be anchored in a framework of wider political support.

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